

REMARKS

The foregoing claim amendment amends claim 1-7 and adds claims 8-10. Pending in the application are claims 1-10, of which claims 1, 2, 3 and 7 are independent. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Claim Amendments

Applicants amend claims 1-7 to clarify the scope of claimed invention. In particular, claims 1, 2, 3 and 7 are amended to recite that *the amount of power generated from a fuel cell is changed during a transition period*. Support for the claim amendments could be found on page 1, lines 10-11. No new matter is added.

Claim Rejections - 35 U.S.C. §112

Claims 1-7 are rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards the invention. The Examiner notes that the recitation of “the gas” is indefinite because it could be anode gas or cathode gas. The Examiner also notes that the terms, “a transition period” and “a stationary state,” are indefinite because the terms are not defined in the claims and the Specification of the pending application.

In response to the rejections, Applicants amend claims 1-7 to address the issues raised by the Examiner under U.S.C. §112, second paragraph. In particular, Applicants define the “transition period” to be a period when an amount of power generated from the fuel cell changes. In light of the aforementioned claim amendments, Applicants request the Examiner withdraw the rejections of claims 1-7 under 35 U.S.C. §112, second paragraph, and pass the claims to allowance.

Claim Rejections - 35 U.S.C. §102Rejections of Claims 1, 2 and 7

Claims 1, 2 and 7 are rejected under 35 U.S.C. §102(b) as being anticipated by JP 58-12268. Applicants respectfully traverse this rejection for the following reasons.

Claims 1, 2 and 7 are independent claims in which claim 1 recites a process including the steps of changing the amount of cathode gas supplied to a fuel cell, and changing the pressure of the cathode gas during a transition period of the fuel cell. Claim 2 recites that a flow amount feedback control step and a pressure feedback control step are stopped during the transition period of the fuel cell. Claim 7 recites a process including the step of controlling a power generation amount of a fuel cell by controlling the flow amount and the pressure of the cathode gas.

The claimed invention controls the power generation of a fuel cell by changing the flow amount and the pressure of cathode gas supplied to the fuel cell in a transition period. In particular, the claimed invention controls *the pressure of the cathode gas* depending on *the flow amount of the cathode gas* in the transition period while the claimed invention controls the pressure of the cathode gas depending on *the feedback signal of the pressure of the cathode gas* in a stationary state. (See, Fig. 4). More specifically, a signal for controlling the pressure of the cathode gas is once slightly decreased at the initial stage of increasing the cathode gas flow amount, and thereafter it is increased following the increase of the cathode gas flow amount. (See, Fig. 5).

Applicants respectfully submit that the cited reference fails to disclose each and every element of the claimed invention. With respect to claim 2, Applicants submit that JP 58-12268 fails to disclose *stopping these two feedback control steps during the transition period of the fuel cell*, as recited in claim 2. The JP 58-12268 reference relates to a method for controlling the cathode gas pressure of a fuel cell to maintain a constant output power even at a load variation. In the JP 58-12268 reference, the differential pressure (P1-P2) is maintained constant by controlling a control valve of the air flow control system (9). The JP 58-12268 reference does

not disclose that a flow amount feedback control step and a pressure feedback control step are stopped during the transition period of the fuel cell.

With respect to claims 1 and 7, Applicants submit that JP 58-12268 fails to disclose that *the cathode gas pressure is controlled depending on the cathode gas amount in the transition period*, as recited in claims 1 and 7. The JP 58-12268 reference discloses in Fig. 3 that when the load (L) of the fuel cell is reduced, the gas amount at (20) is decreased to maintain the pressure difference between P1 and P2, thereby reducing the flow amount exhausted from the compressor. The JP 58-12268 reference also discloses that the control system (6) controls the exhausted air amount to zero. As P1 is being decreased, the control system (7) eventually reduces P2 in response to the decrease in P1. Accordingly, the JP 58-12268 reference discloses the control of the pressure by the use of the valve to ensure the pressure difference. The JP 58-12268 reference does not disclose that the cathode gas is controlled depending on the cathode gas amount in the load variation period.

In light of the claim amendments and aforementioned arguments, Applicants submit that the JP 58-12268 reference fails to disclose each and every element of claims 1, 2 and 7. Applicants therefore request the Examiner withdraw the rejection of claims 1, 2 and 7 under 35 U.S.C. §102(b), and pass the claims to allowance.

Rejections of claims 1-7

Claims 1-7 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,366,821 (“Merritt”). Applicants respectfully traverse this rejection for the following reasons.

Claims 1, 2, 3 and 7 are independent claims in which claim 1 recites a process including the steps of changing the amount of cathode gas supplied to a fuel cell, and changing the pressure of the cathode gas during a transition period of the fuel cell. Claim 2 recites that a flow amount feedback control step and a pressure feedback control step are stopped during the transition period of the fuel cell. Claim 3 recites a system that includes gas flow control means and gas pressure control means. Claims 4-6 depend on claim 3. Claim 7 recites a process including the step of controlling a power generation amount of a fuel cell by controlling the flow amount and the pressure of the cathode gas.

Applicants respectfully submit that the cited reference fails to disclose each and every element of the claimed invention. Applicants submit that Merritt fails to disclose controlling the cathode gas pressure depending on the cathode gas amount in a *transition period* of a fuel cell, as recited in claims 1, 2, 3 and 7. Merritt reference is directed to a constant voltage fuel cell, which is fed a reactant gas, such as an oxidant gas. The Merritt reference does not disclose controlling cathode gas in a *transition period* of a fuel cell. The “transition period” is defined in the claim amendments as a period when an amount of power generated from the fuel cell changes. Merritt does not disclose a period of operation corresponding to the transition period when the power generation amount varies, because the Merritt fuel cell provides a constant output voltage, which does not vary.

In light of the claim amendments and aforementioned arguments, Applicants submit that the Merritt reference fails to disclose each and every element of claims 1, 2, 3 and 7. Applicants therefore request the Examiner withdraw the rejection of claims 1-7 under 35 U.S.C. §102(b), and pass the claims to allowance.

Rejection of claim 2

Claim 2 is rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,393,354 (“Scheffler”). Applicants respectfully traverse this rejection for the following reasons.

Applicants submit a verified English translation of Japanese priority document to rely on the priority date of the pending application. The priority date (the filing date of the corresponding Japanese application) of the pending application antedates the U.S. filing date of the Scheffler reference. Applicants therefore request the Examiner withdraw the rejection of claim 2 under 35 U.S.C. §102(e), and pass the claim to allowance.

Rejections of claims 1-7

Claims 1-7 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,838,020 (“Fujitsuka”). Applicants respectfully traverse this rejection for the following reasons.

Applicants respectfully submit that the cited reference fails to disclose each and every element of the claimed invention. Applicants submit that Fujitsuka fails to disclose controlling the cathode gas pressure depending on the cathode gas amount in *a transition period* of a fuel cell, as recited in claims 1, 2, 3 and 7. The Fujitsuka reference describes a turbo compressor system and a method for controlling the turbo compressor system. The Examiner refers to Fig. 6 which the Fujitsuka reference discloses as “Prior Art”. With reference to Fig. 6, the Fujitsuka reference discloses that the pressure of cathode gas to be supplied to the fuel cell body is maintained *at a constant value* even during a period of change in load. In contrast, the claimed invention controls the cathode gas pressure to be a target value during the transition period of the fuel cell.

In light of the claim amendments and aforementioned arguments, Applicants submit that the Fujitsuka reference fails to disclose each and every element of claims 1, 2, 3 and 7. Applicants therefore request the Examiner withdraw the rejection of claims 1-7 under 35 U.S.C. §102(b), and pass the claims to allowance.

Rejection of claims 1-7

Claims 1-7 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,703,152 (“Komiya”). Applicants respectfully traverse this rejection for the following reasons.

Applicants submit a verified English translation of Japanese priority document to rely on the priority date of the pending application. The priority date (the filing date of the corresponding Japanese application) of the pending application antedates the U.S. filing date of the Komiya reference. Applicants therefore request the Examiner withdraw the rejection of claims 1-7 under 35 U.S.C. §102(e), and pass the claims to allowance.

Rejections of claims 1-7

Claims 1- 7 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,582,841 (“Okamoto”). Applicants respectfully traverse this rejection for the following reasons.

Applicants respectfully submit that the cited reference fails to disclose each and every element of the claimed invention. Applicants submit that Okamoto fails to disclose controlling

an amount and a pressure of cathode gas in *a transition period* of a fuel cell, as recited in claims 1, 2, 3 and 7. The Okamoto reference discloses an air flow control (50) and an air pressure control (56) in Fig. 1. The Okamoto reference generally relates to the control of the output temperature of a *combustor* so as to restrain the influence due to the disturbance caused by the variation in the ingredient concentration of the reformed gas. The Okamoto reference does not disclose the flow and pressure control of cathode gas supplied to a fuel cell. In particular, the Okamoto reference does not disclose the cathode gas flow amount control and the cathode gas pressure control during the transition period of the fuel cell.

In light of the claim amendments and aforementioned arguments, Applicants submit that the Okamoto reference fails to disclose each and every element of claims 1, 2, 3 and 7. Applicants therefore request the Examiner withdraw the rejection of claims 1-7 under 35 U.S.C. §102(e), and pass the claims to allowance.

New Claims

Claims 8-10 depend on claim 1, and add separate and patentable limitations to claim 1. Support for the new claims could be found Figs. 4 and 5 and corresponding description in the Specification. In light of the aforementioned arguments, Applicants submit that claims 8-10 are in condition for allowance.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If, however, the Examiner considers that obstacles to allowance of these claims persist, we invite a telephone call to Applicants' representative.

Dated: July 13, 2004

Respectfully submitted,

By 
Anthony A. Laurentano
Registration No.: 38,220
LAHIVE & COCKFIELD, LLP
28 State Street
Boston, Massachusetts 02109
(617) 227-7400
(617) 742-4214 (Fax)
Attorney for Applicants